

# String Instrument

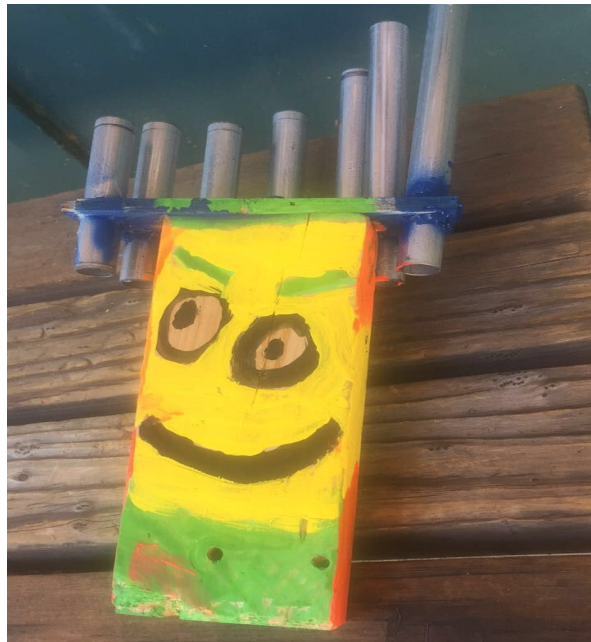
The reason this instrument makes sound is that the strings vibrate at a specific frequency, which in turn creates a sound wave. The string from the middle of the bottle to end of the string is 70 centimeters, which is half the wavelength of a C4. This length was chosen since when the string is plucked, it creates half a wavelength. Since this happens, we need to choose half the wavelength for a C4 note. I then repeated the process for D4 (64cm) E4 (59cm) F4 (55cm) G4 (49cm) A4 (43cm) B4 (40cm) and C5 (38cm) notes. With these lengths, I marked on the instrument where I need to hold down the string to alter the wavelength. The bottle was added so the instrument would be louder. The bottle makes the instrument louder since when the bottle is hit with string, they resonate and amplify the sound.



Data table

# Wind Instruments

The instrument I worked on was the pan flute(as seen in the image below). A pan flute is a wind instrument with a number of tubes that you blow into to make a certain frequency caused by the length of the tube. To make a loud sound come out of a pan flute, the air blown inside needs to either split or having something to bounce off of. For my pan flute, I put my hand on the bottom of the hole of the tube that I'm blowing through. This makes it so that the air bounces back off of my hand and then causes the air to vibrate throughout the tube causing a frequency that sounds strong and good. To find the measurements of my tubing, I used 1/8th of the actual wavelength because of the formula used for wind instruments. The measurements for each of my tubes were: C<sub>5</sub> - 16.5 cm, D<sub>5</sub> - 14.75 cm, E<sub>5</sub> - 13 cm, F<sub>5</sub> - 12.25 cm, G<sub>5</sub> - 11cm, A<sub>5</sub> - 9.75 cm, B<sub>5</sub> - 8.75 cm.



# Chime Instrument

Im legitimately not sure what kind of instrument I have, but its made up of 8 chimes. (Insert instrument name here) works by striking chimes, which then vibrates at its natural frequency, lengthening the tube lowers the exciting frequency. The tubes are suspended above the base by two small blocks, and are held on string. The longest chime plays a B at 4000 hz. This tube was  
was  
15 cm long.

15cm (B)	14.142(	13.416	12.99	12.2475	11.619	10.9545	10.6065
100.9755	100.9755						

